

## QUANTUM OPTOMECHANICS - MECHANICAL MOTION IN THE QUANTUM REGIME -

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The quantum optical control of solid-state mechanical devices, quantum optomechanics, has emerged as a new frontier of light-matter interaction. Devices currently under investigation cover a mass range of more than 17 orders of magnitude - from nanomechanical waveguides to macroscopic mirrors of gravitational wave detectors. Today, 10 years after the first demonstrations of laser cooling of micromechanical resonators, the quantum regime of nano- and micromechanical motion is firmly established. This opens fascinating perspectives both for applications and for unique tests of the foundations of quantum physics, eventually at its interface with gravity.

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